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EXAMINER	
MOORE, IAN N	

ART UNIT	PAPER NUMBER
2661	10

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/687,199	CZAJA ET AL.	
	Examiner	Art Unit	
	Ian N Moore	2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-31 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) 26-31 is/are allowed.

6)☒ Claim(s) 1,2 and 4-25 is/are rejected.

7)☒ Claim(s) 3 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed May 14,2004 have been fully considered but they are not persuasive.

Regarding claim12, applicant recites that claim 12 is amended to replace "**means for**" language with " **mobile station transmission control facilities**" and "**a mobile station handoff control module"**, but it is "non-narrowing amended" in page 10, paragraph 2.

In response to applicant's remark, the examiner respectfully disagrees that such amendment is non-narrowing amendment at least for the following reasons:

a. None of these limitations are recited in previous claim.

b. Previous claimed recites "means for...", which is any means. However, amended claim specifies a particular means, "**mobile station transmission control facilities**" and "**a mobile station handoff control module.**

Thus, claim 12 is rejected with the new ground of rejection.

Regarding claims 1, 12 and 21, the applicant argued that, "...Czaja'726 does not address reverse-link handoffs. While some sort of reverse-link handoff is implicit, no details are provided in regard to decision about initiating or performing reverse-link handoffs..." (in page 12, second paragraph), and "...Czaja'726 fails to teach anything about initiating a reverse link handoff..." in page 14, paragraph 3.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e.,

handoffs) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Moreover, **the examiner respectfully disagrees** that Czaja'726 does not address reverse-link handoff. Czaja'726 discloses, a reverse link handoff, in page 4, paragraph 58 and FIG. 12. It is well known in the art that a forward link is the link from a base station to a mobile unit, and the revise link is the link from mobile unit to a base station. Czaja'726's handoff is initiated and assisted by a mobile station after measuring and comparing signal energy/strength between 2G base station (see FIG. 12, BS1, 122) and 3G base station (see FIG. 12, BS2, 123), see page 3, paragraph 41-48. Thus, it is clear that a handoff disclosed by Czaja'726 is "a reverse link handoff". Also, per specification, page 18, paragraph 1, when mobile unit is initiating/assisting a handoff, it must occur on the reverse link because a typical mobile station can transmit a signal for only one generation at a time. Thus, it is clear that in the intergenerational handoff (see Czaja'726 FIG. 12) when the mobile unit is initiating/assisting, it must be "a reverse link handoff". Also, both specification and claims 19-20 recite, "...the handoff is an intergenerational soft handoff comprising a forward link soft handoff and a **reverse link** hard handoff (claim 19)...and the handoff is an intergenerational hard handoff comprising a forward link hard handoff and **a reverse link** hard handoff (claim 20)..." Thus, it is clear that a various type of reverse handoff can be performed depending on various scenarios. Accordingly, examiner asserts Czaja'726's handoff as " **a reverse link** handoff ..."

Regarding claims 1, 12 and 21, the applicant argued that, "...In no manner does Chheda'738 teaches using Eb/No as a basis for **any** decision...**except**, of course, the circular basis of seeing whether Eb/No has achieved its target value...Chheda'738, however, does not teach using Eb/No to control anything outside the power control loop..." in page 12, paragraph 4.

In response to applicant's argument, the examiner respectfully disagrees that Chheda'738 does not teach using Eb/No as a basis for any decision. Applicant argued Chheda'738 does not teach using Eb/No as a basis for any decision. At the same time, applicant is also admitting that Chheda'738 teaches Eb/No as a basis for **a decision,** in page 12, paragraph 4, as "***except**, of course, the circular basis of seeing whether Eb/No has achieved its target value*". Examiner is confused with the argument. Chheda'738 teaches teach using Eb/No as a basis for a decision (see decision steps, see FIG. 2, Steps 202,245, 250, 256 and see FIG. 3, decision steps 305, 345, and 350); see col. 8, lines 1-42, see col. 2, lines 35-56, see col. 4, lines 1-32).

Applicant argued Chheda'738, however, does not teach using Eb/No to control anything outside the power control loop. At the same time, applicant is also admitting that Chheda'738 teaches the using Eb/No of FQM for the purpose of handoff in page 13, paragraph 1, as "*...the second **use** of the FQM is for the **purpose** of determining which frame a base station controller choose...during CDMA handoffs...*" Examiner is confused with the argument. Chheda'738 teaches using Eb/No to control anything outside the power control loop. In particular, Chheda'738 teaches using Eb/No to determine and control frame quality

metrics, which is used during a handoff between two base stations (see col. 5, lines 15-20; see col. 2, lines 20-25).

Regarding claims 1, 12 and 21, the applicant argued that, "...modifying Czaja'726 according to Chheda'738 might result in a combination whereby handoff decision are based upon the FQM. However, such a combination does not resemble any combination of features claimed by the applicant..." in page 13, paragraph 1; and "...Chheda'738 has no corresponding teaching that could be "substituted in" for omitted elements...Theses are not similar functions, and accordingly, the teaching of Chheda'738 is simply inapplicable as a modification of Czaja'726 to achieve features recited..." in page 15, last paragraph 1.

In response to applicant's argument, the examiner respectfully disagrees that a combination does not resemble any combination of features claimed by the applicant. Czaja'726 disclose a handoff between base stations. Chheda'738 teaches a handoff between the base stations based upon Eb/No. Thus, it is clear that the combined system still reads on claimed limitations.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Moreover, as recited in first office action, Czaja'726's system is modified according to the teaching of Chheda'738, not replacing.

In response to applicant's argument that modifying Czaja'726 according to Chheda'738 might result in a combination whereby handoff decision are based upon the

FQM, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Regarding claims 1, 12 and 21, the applicant argued that, "...there is no motivation exists in the cited references for modifying Czaja'726 in accordance with the teaching of Chheda'738..." in page 13, paragraph 2.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Chheda'738 discloses the motivation in col. 4, line 1-4 and col. 5, line 15-20 that such modification would optimize the reverse link power control during rapid rate changes and provide a way to adjust/select quality frame during the handoff.

The applicant argued that, " because Czaja'726 has no teaching in regard to any comparison between parameters with an offset, Czaja'726 fails to disclose or teach step (d) of claim 1 as well. As such, Czaja'726 fails to teach any one of five steps in claim 1..." in page 14, paragraph 2.

In response to applicant's argument, the examiner respectfully disagrees that Czaja'726 has no teaching in regard to any comparison between parameters, Czaja'726 fails to disclose or teach step (d) of claim 1 as well. Czaja'726 disclose the comparison between parameters by determining measured signal strength between active BS and candidate BS in page 3, paragraph 42-49. Note that it is well known in the art that when comparing between two numbers/parameter, one must first know the differences/offset between the two parameters/numbers in order to determine, whether one is greater, equal, or smaller than the other. Since Czaja'726 teaches the step of determining/comparing between two parameters, it inherently teaches comparing the first parameter, with a second parameter and an offset/difference. Thus, it is inherent that when comparing between two parameters/number in order to determine whether one parameter is less than or equal to the other, an offset/different must be calculated, and it must also be used as part of the comparison process. As recited, in the previous action, although Czaja'726 inherently teaches the offset, and it does not explicitly disclose the offset; however, Chheda'738 teaches utilizing offset/delta when comparing between two parameters in col. 8, lines 1-42, see col. 4, lines 1-32, see col. 2, lines 35-56. Thus, it is clear that Czaja'726 teaches all five steps as stated in 1st office action. Thus, it is clear the combined system of Czaja'726 and Chheda'738 teaches the comparison between a first parameter, with a second parameter and a delta/offset/difference.

The applicant argued that, "...offsets in Chheda'738 do not correspond to the offset required in the context of claim 1..." in page 15, last paragraph 2.

In response to applicant's argument, the examiner respectfully disagrees that offsets in Chheda'738 do not correspond to the offset required in the context of claim 1.

Czaja'72 teaches comparing power strength parameters between two base stations for handoff. Chheda'738 teaches the comparing a first power strength parameter Eb/No with a second power strength parameter and the delta/offset for handoff. Both Czaja'726 and Chheda'738 teach comparing signal power strength. Thus, it is clear that Chheda'738's offset/delta fully corresponds to the offset recite in claim 1. In fact, offset/delta value corresponds to any comparison, which involves two parameters/numbers.

The applicant argued that, "...neither Czaja'726 nor Chheda'738 teaches making a decision to initiate a reverse link handoff on the basis of any parameter, let alone on the basis of two different parameters plus an offset..." in page 15, last paragraph 4.

In response to applicant's argument, the examiner respectfully disagrees that neither Czaja'726 nor Chheda'738 teaches making a decision to initiate a reverse link handoff on the basis of any parameter, let alone on the basis of two different parameters plus an offset. Czaja'726 discloses a handoff between two generations of CDMA, when the candidate BS signal strength is greater than the threshold (i.e. signal strength of the active BS), then handoff is initiated. Since the handoff is initiated by the mobile unit from the reverse link and performs by BS; thus it is a reverse link handoff; page 4, paragraph 58, see page 4, paragraph 54-61. Chheda'738 discloses performing the selections and/or adjustments if the first parameter is less than or equal to the sum of the second parameter and the offset (see col. 2, lines 35-56 and col. 5, line 1-20; note that quality frame selection between two base stations during handoff is performed according to the comparison results from step C.) Note that Czaja'726 teaches the signal strength measurement of active and candidate base station in order to perform a handoff. Chheda'738 teaches measuring the value of Eb/No, comparing

them to the target value, determining the base station that sends quality frame during handoff, and utilizing delta as the quality adjustment/selection factor. Thus, Czaja'726 system can be modified to perform a handoff based upon the Eb/No and delta per Chheda'738 teaching.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The applicant argued that, "...Chheda'738 needs to teach at least (i) a suggestion of using the Eb/No parameter to control something (beside itself), (ii) in the context of different such parameters, and (iii) using a comparison between the different parameters that involves an offset. Chheda'738 fails on all three of these counts.."...(in page 15, last paragraph).

In response to applicant's argument, the examiner respectfully disagrees that Chheda'738 teaches all three counts:

(i) a suggestion of using the Eb/No parameter to control something (beside itself) (Chheda'738 teaches teach using Eb/No as a basis for a decision (see decision steps, see FIG. 2, Steps 202,245, 250, 256 and see FIG. 3, decision steps 305, 345, and 350); see col. 8, lines 1-42, see col. 2, lines 35-56, see col. 4, lines 1-32. In particular, Chheda'738's Eb/Nt decision is utilized for handoff.;

(ii) in the context of different such parameters (see col. 8, lines 1-42; Eb/No= $(Eb/No)_{tar}$-Delta (i.e. $(Eb/No)_{tar}$ = Eb/No + Delta; note that delta is the context of difference between parameters;

(iii) using a comparison between the different parameters that involves an offset (see col. 4, lines 1-32, col. 2, lines 35-56; note that delta value (i.e. FER rate change) is determined by comparing the measured Eb/No with target $(Eb/No)_{tar}$. Delta is used to adjust/define the transmission rate according to GOS (Grade of service).

The applicant argued that, "...cited motivation entirely fails to lead to the claimed invention..." in page 16, paragraph 4.

In response to applicant's argument, the examiner respectfully disagrees cited motivation entirely fails to lead to the claimed invention. As recited in Chheda'738 col. 4, lines 1-4, the cited motivation clearly states that, it will optimize the reverse power control during rapid rate changes. Chheda'738 clearly states col. 5, lines 15-20, the cited motivation clearly states that it will provide a way to adjust/select quality signal/frame transmitting base station during handoff. In fact, claims 6

Therefore, when considering the combination of Czaja'726 and Chheda'738 as whole at the time of the invention made, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Czaja'726, by measuring the value of Eb/No, comparing them to the target value, determining the base station that sends quality frame during handoff, and utilizing delta as the quality adjustment/selection factor, as taught by Chheda'738. The motivation to combine is to obtain the advantages/benefits taught by Chheda'738 since Chheda'738 states at col. 4, line 1-4 and col. 5, line 15-20 that such modification would optimize the reverse link power control during rapid rate changes and provide a way to adjust/select quality frame during the handoff.

In view of the above, **the examiner respectfully disagrees** with applicant's argument and believes that the combination of references as set forth in the 103 rejections is proper, thus, Claims **1-25** are obvious over Czaja'726 in view of Chheda'738 for at least the reasons discussed above.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 12 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which **was not described in the specification** in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 12 is amended to include, "...**mobile station handoff control module**..." However, neither the specification nor the drawings disclose this newly added limitation, "mobile station handoff control module".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2, 4-7, 9,11, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Czaja (U.S. 2002/0037726A1) in view of Chheda (U.S. 6,181,738).

Regarding Claims 1 and 21, Czaja'726 discloses a method **(see page 5, method/logic/computational claims for the CDMA cellular radiophone system)** of initiating a reverse link handoff **(see page 4, paragraph 35-36; General handoff)** in a CDMA communication system **(see FIG. 1, CDMA IS-95 and IS-2000 Networks)** having a plurality of base stations in communication **(see FIG. 12 BS1 (Base Station 1) 122and BS2 123)** with at least one mobile station **(see FIG. 12, MS 124)**, wherein each base station transmits at least one associated and corresponding pilot channel that uniquely identifies the base station **(see page 1, paragraph 6; note that each base station transmits un-modulated pilot signals/PN codes for identification)**, comprising the step of:

a) obtaining/monitoring a first parameter obtained from the serving base station, wherein the first parameter that is associated with the serving base station **(see page 3, paragraph 41; note that mobile unit measures signal strength from active base station)**;

b) obtaining/monitoring a second parameter obtained from the target base station, wherein the second parameter, that is associated with the target base station **(see page 3, paragraph 41; note that mobile station measures signal strength from candidate base station)**;

c) determining if the first parameter is less than or equal to the sum of the second parameter **(see page 3, paragraph 42-49; note that each measurement is compared to the threshold. The threshold must be set at least equal to minimum acceptable signal**

strength (i.e. setting threshold value to existing signal strength of the active BS). Also, determining step includes whether active BS signal strength is lesser or equal to the candidate BS signal strength. Thus, comparing the measured results with the threshold means comparing the measured signal strength values to existing active BS signal strength in order to determine the signal strength for the handoff.)

d) returning to step (a) if the first parameter is not less than or equal to the sum of the second parameter (**see page 3, paragraph 42-49; note that when the measured value is less than or equal the threshold (i.e. the active BS signal strength is greater or equal to candidate BS signal strength), then the mobile unit must continue to measure other neighbors from the neighbor list sine the measured signal strength does not meet the requirement for the handoff**); and

e) initiating a reverse link intergenerational hard handoff between the serving and target base stations (**see page 4, paragraph 58; a handoff between two generations of CDMA**) if the first parameter is less than or equal to the sum of the second parameter (**see page 4, paragraph 54-61; note that when the candidate BS signal strength is greater than the threshold (i.e. signal strength of the active BS), the handoff is initiated. Since the handoff is initiated by the mobile unit from the reverse link and performs by BS; thus it is a reverse link hard handoff**.)

Czaja'726 does not explicitly disclose a) obtaining wherein the first parameter comprises the value of Eb/Nt; b) obtaining wherein the second parameter comprises the value Eb/Nt, that is associated with the target base station; c) determining if the first parameter is less than or equal to the sum of the second parameter and an offset; and d) initiating and

performing the selections and/or adjustments if the first parameter is less than or equal to the sum of the second parameter and the offset.

However, the above-mentioned claimed limitations are taught by Chheda'738. In particular, Chheda'738 teaches

a) obtaining wherein the first parameter comprises the value of Eb/Nt (**see FIG. 1, Measure Eb/No 105; see col. 2, lines 10-34; note that the value of Eb/No is the received power bit energy to noise density**);

b) obtaining wherein the second parameter comprises the value Eb/Nt, that is associated with the target base station (**see FIG. 1, Target Eb/No 110; see col. 2, lines 10-34; note that the value of Eb/No is the target received power bit energy to noise density**);

c) determining if the first parameter is less than or equal to the sum of the second parameter and an offset (**see col. 8, lines 1-42; Eb/No= $(Eb/No)_{tar}$-Delta (i.e. $(Eb/No)_{tar}$ = Eb/No + Delta); also see col. 4, lines 1-32, col. 2, lines 35-56; note that delta value (i.e. FER rate change) is determined by comparing the measured Eb/No with target $(Eb/No)_{tar}$. Delta is used to adjust/define the transmission rate according to GOS (Grade of service))**;

d) initiating and performing the selections and/or adjustments if the first parameter is less than or equal to the sum of the second parameter and the offset (**see col. 2, lines 35-56 and col. 5, line 1-20; note that quality frame selection between two base stations during handoff is performed according to the comparison results from step C**.)

Note that Czaja'726 teaches the signal strength measurement of active and candidate base station in order to perform a handoff. Chheda'738 teaches measuring the value of Eb/No, comparing them to the target value, determining the base station that sends quality frame during handoff, and utilizing delta as the quality adjustment/selection factor. Thus, Czaja'726 system can be modified to perform a handoff based upon the Eb/No and delta per Chheda'738 teaching. In view of this, having the system of Czaja'726 and then given the teaching of Chheda'738, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Czaja'726, by measuring the value of Eb/No, comparing them to the target value, determining the base station that sends quality frame during handoff, and utilizing delta as the quality adjustment/selection factor, as taught by Chheda'738. The motivation to combine is to obtain the advantages/benefits taught by Chheda'738 since Chheda'738 states at col. 4, line 1-4 and col. 5, line 15-20 that such modification would optimize the reverse link power control during rapid rate changes and provide a way to adjust/select quality frame during the handoff.

Regarding claim 2, the combined system of Czaja'726 and Chheda'738 discloses all aspects of the claimed invention set forth in the rejection of Claim 1 as described above, and Czaja'726 further teaches wherein the step (b) further comprises obtaining a target base station Ec/Io, value associated with the target base station. (see page 4 , paragraph 35 and 42; note that mobile unit acquires the candidate BS's value, which is a ratio of received pilot energy, Ec, to the total received spectral density, Io).

Regarding claim 4, Czaja'726 discloses wherein the serving base station (**see FIG. 1, active base station B 121 in IS-95-B network**) and the target base station (**see FIG. 1, candidate base station A 141 in IS-2000 network**) operate in accordance to different generations of CDMA systems (**see FIG. 1, note that IS-95-B is 2G network and IS-2000 is 3G network**).

Regarding claim 5, Chheda'738 further teaches wherein the offset is based on a Frame Error Rate (FER) parameter (see col. 3, lines 30-60; note that delta value is the quality (GOS) variable according to FER.)

In view of this, having the system of Czaja'726 and then given the teaching of Chheda'738, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Czaja'726, by utilizing the delta value according to FER, as taught by Chheda'738, for the same motivation as stated above in Claims 1 and 12.

Regarding claim 6, Chheda'738 further teaches wherein the offset is based on a Quality of Service (QoS) parameter (see col. 2, lines 14-20; note that delta value is the quality value according to GOS (grade of service).)

In view of this, having the system of Czaja'726 and then given the teaching of Chheda'738, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Czaja'726, by utilizing the delta value according to GOS, as taught by Chheda'738, for the same motivation as stated above in Claims 1 and 12.

Regarding claims 7, 9, and 11, Czaja'726 further teaches wherein the step (e) of initiating a reverse link handoff is autonomously initiated by the mobile station (see page 4, paragraph 58; note that the handoff is initiated by the mobile unit from the reverse link and performs by BS.)

Regarding Claim 22, Czaja'726 discloses an apparatus for initiating a reverse link handoff (see page 4, paragraph 35-36; General handoff) in a CDMA communication system (see FIG. 1, CDMA IS-95 and IS-2000 Networks) having a plurality of base stations in communication (see FIG. 12 BS1 (Base Station 1) 122and BS2 123) with at least one mobile station (see FIG. 12, MS 124), wherein each base station transmits at least one associated and corresponding pilot channel that uniquely identifies the base station (see page 1, paragraph 6; note that each base station transmits un-modulated pilot signals/PN codes for identification), and wherein the serving base station (see FIG. 1, active base station B 121 in IS-95-B network) and the target base station (see FIG. 1, candidate base station A 141 in IS-2000 network) operate in accordance to different generations of CDMA systems (see FIG. 1, note that IS-95-B is 2G network and IS-2000 is 3G network) comprising:

a) means for sending a PSMM to the serving base station and adding the target base station to an active set when a first parameter, Ec/Io, associated with the target base station is greater than a T -Add threshold parameter (see page 4, paragraph 57-59; note that mobile unit sends PSMM to active base station when Ec/Io is larger than T_ADD threshold); and

b) means for initiating a reverse link intergenerational hard handoff, wherein the hard handoff initiation means is responsive to the serving base station, and wherein the hard

handoff initiation means initiates a reverse link intergenerational hard handoff when the serving base station transmits an intergenerational handoff direction message to the mobile station and when a second parameter, associated with the serving base station is less than or equal to a sum of a third parameter, associated with the target base station (see page 4, paragraph 54-60; note that the active base station instructs the mobile unit to handoff. Then after, Mobile unit begins to communicate with candidate BS. Mobile unit also performs additional inter-generational handoff requirements by tuning dynamically to each BS, determining the energy when the signal is too weak to be of any use (i.e. when to drop), and comparing the energy value of BSs to IG_T_DROP and /or IG_DROP_TSHD. When active BS energy is weaker than IG_DROP_TSHD, then the handoff occurs. Note that each energy value is compared to the threshold IG_DROP_TSHD. The threshold must be set at least equal to minimum acceptable signal strength (i.e. setting threshold value to existing signal strength of the active BS). Thus, comparing the energy values with the thresholds means comparing the energy values to existing active BS in order to determine the handoff. Since the handoff is initiated by the mobile unit from the reverse link and performs by BS; thus it is a reverse link hard handoff.)

Czaja'726 does not explicitly disclose a wherein determining a second parameter, Eb/Nt, is less than or equal to a sum of a third parameter, Eb/Nt and an offset.

However, the above-mentioned claimed limitations are taught by Chheda'738. In particular, Chheda'738 teaches wherein determining a second parameter, Eb/Nt (see FIG. 1, Measure Eb/No 105; see col. 2, lines 10-34; note that the value of Eb/No is the received power bit energy to noise density), is less than or equal to a sum of a third parameter, Eb/Nt

(see FIG. 1, Target Eb/No 110; see col. 2, lines 10-34; note that the value of Eb/No is the target received power bit energy to noise density) and an offset (see col. 8, lines 1-42; Eb/No= $(Eb/No)_{tar}$-Delta (i.e. $(Eb/No)_{tar}$ = Eb/No + Delta); also see col. 4, lines 1-32, col. 2, lines 35-56; note that delta value (i.e. FER rate change) is determined by comparing the measured Eb/No with target $(Eb/No)_{tar}$. Delta is used to adjust/define the transmission rate according to GOS (Grade of service))

Note that Czaja'726 teaches the signal strength measurement of active and candidate base station in order to perform a handoff. Chheda'738 teaches measuring the value of Eb/No, comparing them to the target value, determining the base station that sends quality frame during handoff, and utilizing delta as the quality adjustment/selection factor. Thus, Czaja'726 system can be modified to perform a handoff based upon the Eb/No and delta per Chheda'738 teaching. In view of this, having the system of Czaja'726 and then given the teaching of Chheda'738, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Czaja'726, by measuring the value of Eb/No, comparing them to the target value, determining the base station that sends quality frame during handoff, and utilizing delta as the quality adjustment/selection factor, as taught by Chheda'738. The motivation to combine is to obtain the advantages/benefits taught by Chheda'738 since Chheda'738 states at col. 4, line 1-4 and col. 5, line 15-20 that such modification would optimize the reverse link power control during rapid rate changes and provide a way to adjust/select quality frame during the handoff.

4. Claims 12-18 and 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Czaja'726 and Chheda'738, in view of Wheatley (U.S. 5,872,774).

Regarding Claim 12, Czaja'726 discloses an apparatus for initiating a reverse link handoff (**see page 4, paragraph 35-36; General handoff**) in a CDMA communication system (**see FIG. 1, CDMA IS-95 and IS-2000 Networks**) having a plurality of base stations in communication (**see FIG. 12 BS1 (Base Station 1) 122and BS2 123**) with at least one mobile station (**see FIG. 12, MS 124**), wherein each base station transmits at least one associated and corresponding pilot channel that uniquely identifies the base station (**see page 1, paragraph 6; note that each base station transmits un-modulated pilot signals/PN codes for identification**),comprising:

a) mobile station (**see FIG. 12, MS 124**) configured to send a PSMM to the serving base station and adding the target base station to an active set when a first parameter, Ec/Io, associated with the target base station is greater than a T -Add threshold parameter (**see page 4, paragraph 57-59; note that mobile unit sends PSMM to active base station when Ec/Io is larger than T_ADD threshold**); and

b) mobile station for initiating a reverse link intergenerational hard handoff, when a second parameter, associated with the serving base station is less than or equal to a sum of a third parameter, associated with the target base station (**see page 4, paragraph 54-60**; note that the active base station instructs the mobile unit to handoff. Then after, Mobile unit begins to communicate with candidate BS. Mobile unit also performs additional inter-generational handoff requirements by tuning dynamically to each BS, determining the energy when the signal is too weak to be of any use (i.e. when to drop), and comparing the energy

value of BSs to IG_T_DROP and /or IG_DROP_TSHD. When active BS energy is weaker than IG_DROP_TSHD, then the handoff occurs. Note that each energy value is compared to the threshold IG_DROP_TSHD. The threshold must be set at least equal to minimum acceptable signal strength (i.e. setting threshold value to existing signal strength of the active BS). Thus, comparing the energy values with the thresholds means comparing the energy values to existing active BS in order to determine the handoff. Since the handoff is initiated by the mobile unit from the reverse link and performs by BS; thus it is a reverse link hard handoff.)

Czaja'726 does not explicitly disclose a wherein determining a second parameter, Eb/Nt, is less than or equal to a sum of a third parameter, Eb/Nt and an offset.

However, the above-mentioned claimed limitations are taught by Chheda'738. In particular, Chheda'738 teaches wherein determining a second parameter, Eb/Nt (see FIG. 1, Measure Eb/No 105; see col. 2, lines 10-34; note that the value of Eb/No is the received power bit energy to noise density), is less than or equal to a sum of a third parameter, Eb/Nt (see FIG. 1, Target Eb/No 110; see col. 2, lines 10-34; note that the value of Eb/No is the target received power bit energy to noise density) and an offset (see col. 8, lines 1-42; Eb/No= $(Eb/No)_{tar}$-Delta (i.e. $(Eb/No)_{tar}$ = Eb/No + Delta); also see col. 4, lines 1-32, col. 2, lines 35-56; note that delta value (i.e. FER rate change) is determined by comparing the measured Eb/No with target $(Eb/No)_{tar}$. Delta is used to adjust/define the transmission rate according to GOS (Grade of service))

Note that Czaja'726 teaches the signal strength measurement of active and candidate base station in order to perform a handoff. Chheda'738 teaches measuring the value of

Eb/No, comparing them to the target value, determining the base station that sends quality frame during handoff, and utilizing delta as the quality adjustment/selection factor. Thus, Czaja'726 system can be modified to perform a handoff based upon the Eb/No and delta per Chheda'738 teaching. In view of this, having the system of Czaja'726 and then given the teaching of Chheda'738, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Czaja'726, by measuring the value of Eb/No, comparing them to the target value, determining the base station that sends quality frame during handoff, and utilizing delta as the quality adjustment/selection factor, as taught by Chheda'738. The motivation to combine is to obtain the advantages/benefits taught by Chheda'738 since Chheda'738 states at col. 4, line 1-4 and col. 5, line 15-20 that such modification would optimize the reverse link power control during rapid rate changes and provide a way to adjust/select quality frame during the handoff.

Neither Czaja'726 nor Chheda'738 explicitly disclose transmission control facilities (see FIG. 4, Searcher 50, Message generator 52, Traffic Mod 54, Traffic Demod 58, and control processor) and a mobile station handoff control module (see4, Mobile Station Control Procssor; see col. 6, lines 57 to col. 7, lines 14; abstract.

However, the above-mentioned claimed limitations are taught by Wheatley'774. In view of this, having the combined system of Czaja'726 and Chheda'738, then given the teaching of Wheatley'774, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Czaja'726 and Chheda'738, for the purpose of providing mobile station transmission control facilities and a control module, as taught by Wheatley'774, since Wheatley'774 states the

advantages/benefits at see col. 6, lines 57 to col. 7, lines 14 that it would provide various control functionalities such as searching, generating messages, and processing the messages. The motivation being that by utilizing the control facilities and module, it can increase the processing of plurality functions simultaneously.

Regarding claim 13, Czaja'726 discloses wherein the serving base station (**see FIG. 1, active base station B 121 in IS-95-B network**) and the target base station (**see FIG. 1, candidate base station A 141 in IS-2000 network**) operate in accordance to different generations of CDMA systems (**see FIG. 1, note that IS-95-B is 2G network and IS-2000 is 3G network**).

Regarding claim 14, Czaja'726 teaches measuring/obtaining required signal strength values from the target base station and the servicing base station. Note that each signal strength value required by both base stations is measured (see page 4, paragraph 60). Chheda'738 further teaches wherein the offset is a difference between the third parameter, Eb/Ni, and the second parameter, Eb/Nt (see col. 8, lines 1-42; Eb/No = $(Eb/No)_{tar}$ - Delta (i.e. **Delta = Eb/No - $(Eb/No)_{tar}$**).)

In view of this, having the system of Czaja'726 and then given the teaching of Chheda'738, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Czaja'726, by defining the delta as the different between target value and received/measured value, as taught by Chheda'738, for the same motivation as stated above in Claim 12.

Regarding claim 15, Chheda'738 further teaches wherein the offset is based on a Frame Error Rate (FER) parameter (see col. 3, lines 30-60; note that delta value is the quality (GOS) variable according to FER.)

In view of this, having the system of Czaja'726 and then given the teaching of Chheda'738, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Czaja'726, by utilizing the delta value according to FER, as taught by Chheda'738, for the same motivation as stated above in Claims 1 and 12.

Regarding claim 16, Chheda'738 further teaches wherein the FER parameter comprises a 1 % FER (see col. 3, line 30-44; note that FER rate operation at 1-2% target/threshold rate).

In view of this, having the system of Czaja'726 and then given the teaching of Chheda'738, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Chheda'738, by setting lower FER rate for higher quality traffic, as taught by Chheda'738, for the same motivation as stated above in Claim 12.

Regarding claims 17, Chheda'738 further teaches wherein the offset is based on a Quality of Service (QoS) parameter (see col. 2, lines 14-20; note that delta value is the quality value according to GOS (grade of service).)

In view of this, having the system of Czaja'726 and then given the teaching of Chheda'738, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Czaja'726, by utilizing the delta value according to GOS, as taught by Chheda'738, for the same motivation as stated above in Claims 1 and 12.

Regarding claim 18, Czaja'726 further teaches wherein the step (e) of initiating a reverse link handoff is autonomously initiated by the mobile station (see page 4, paragraph 58; note that the handoff is initiated by the mobile unit from the reverse link and performs by BS.)

Regarding claim 23, Czaja'726 discloses wherein the mobile station handoff control module is further configured to initiate the handoff in response to servicing station, when the servicing base station transmits an intergenerational handoff direction message (**see page 4, paragraph 52, 60; page 3, paragraph 36**; general handoff direction message, between two system generations) to the mobile station (see page 4, paragraph 54-60; note that the active base station instructs the mobile unit to handoff. Then after, Mobile unit begins to communicate with candidate BS. Mobile unit also performs additional inter-generational handoff requirements by tuning dynamically to each BS, determining the energy when the signal is too weak to be of any use (i.e. when to drop), and comparing the energy value of BSs to IG_T_DROP and /or IG_DROP_TSHD. When active BS energy is weaker than IG_DROP_TSHD, then the handoff occurs. Note that each energy value is compared to the

threshold IG_DROP_TSHD. The threshold must be set at least equal to minimum acceptable signal strength (i.e. setting threshold value to existing signal strength of the active BS).

5. Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system of Czaja'726 and Chheda'738 as applied to claim 1 above, and further in view of well established teaching in art.

Regarding claims 8 and 10, the combined system of Czaja'726 and Chheda'738 discloses all aspects of the claimed invention set forth in the rejection of Claim 1 as described above, and Czaja'726 further teaches wherein the handoff is an intergenerational handoff between the servicing and target base stations.

Neither Czaja'726 nor Chheda'738 explicitly discloses wherein the handoff is an intergenerational soft handoff comprising a forward link soft handoff and a reverse link hard handoff, and wherein the handoff is an intergenerational hard handoff comprising a forward link hard handoff and a reverse link hard handoff.

However, the above-mentioned claimed limitations are well known in the art of intergenerational handoff. In particular, the handoff is an intergenerational soft handoff comprising a forward link soft handoff and a reverse link hard handoff, and the handoff is an intergenerational hard handoff comprising a forward link hard handoff and a reverse link hard handoff. Note that Czaja'726 teaches a mobile unit initiating a handoff by utilizing the signal strength, and base station instructs the mobile to handoff. In addition, the mobile unit performs additional requirements during a handoff and before the completion. Also, it is well

known in the art of CDMA that either the base station and/or the mobile unit can perform the handoff (i.e. intergenerational soft handoff and intergenerational hard handoff).

In view of this, having the combined system of Czaja'726 and Chheda'738, then given the well established teaching of the art, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Czaja'726 and Chheda'738, by providing a various of intergeneration handoffs, as taught by well established teaching in the art. The motivation to combine is to obtain the advantages/benefits taught by well established teaching in the art that since Czaja'726 states at see page 1, paragraph 9 that such modification would provide backward compatibility with the 2G system at the signaling call processing level.

6. Claims 19, 20, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system of Czaja'726, Chheda'738 and Wheatley'774, as applied to claim 12 above, and further in view of well established teaching in art.

Regarding claims 19 and 20, the combined system of Czaja'726, Chheda'738 and Wheatley'774 discloses all aspects of the claimed invention set forth in the rejection of Claim 12 as described above, and Czaja'726 further teaches wherein the handoff is an intergenerational handoff between the servicing and target base stations.

Neither Czaja'726, Chheda'738 nor Wheatley'774 explicitly discloses wherein the handoff is an intergenerational soft handoff comprising a forward link soft handoff and a reverse link hard handoff, and wherein the handoff is an intergenerational hard handoff comprising a forward link hard handoff and a reverse link hard handoff.

However, the above-mentioned claimed limitations are well known in the art of intergenerational handoff. In particular, the handoff is an intergenerational soft handoff comprising a forward link soft handoff and a reverse link hard handoff, and the handoff is an intergenerational hard handoff comprising a forward link hard handoff and a reverse link hard handoff. Note that Czaja'726 teaches a mobile unit initiating a handoff by utilizing the signal strength, and base station instructs the mobile to handoff. In addition, the mobile unit performs additional requirements during a handoff and before the completion. Also, it is well known in the art of CDMA that either the base station and/or the mobile unit can perform the handoff (i.e. intergenerational soft handoff and intergenerational hard handoff).

In view of this, having the combined system of Czaja'726, Chheda'738 and Wheatley'774, then given the well established teaching of the art, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Czaja'726, Chheda'738 and Wheatley'774, by providing a various of intergeneration handoffs, as taught by well established teaching in the art. The motivation to combine is to obtain the advantages/benefits taught by well established teaching in the art that since Czaja'726 states at see page 1, paragraph 9 that such modification would provide backward compatibility with the 2G system at the signaling call processing level.

Regarding claims 24 and 25, Czaja'726 further teaches initiating a intergenerational handoff is autonomously initiated by the mobile station (**see page 4, paragraph 58**; note that the handoff is initiated by the mobile unit.) well established teaching in art teaches that

handoffs can be either soft handoff or hard handoff in intergenerational (i.e. 2G, 2.5G and 3G) communication.

In view of this, having the combined system of Czaja'726, Chheda'738 and Wheatley'774, then given the well established teaching of the art, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Czaja'726, Chheda'738 and Wheatley'774, for the same motivation and purpose as described above in claim 19 and 20.

Allowable Subject Matter

7. Claims **26-31** allowed.

8. **Claim 3** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N Moore whose telephone number is 703-605-1531. The examiner can normally be reached on M-F: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on 703-308-7828. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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